

**A NEW SPECIES OF *GLAUCINA* HULST FROM  
WYOMING AND COLORADO, AND DESCRIPTION OF  
THE FEMALE OF *G. NEPHOS* RINDGE  
(LEPIDOPTERA: GEOMETRIDAE)**

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*Abstract.*—A new species in the geometrid moth genus *Glaucina* is described from Wyoming and Colorado. The previously unknown female of *Glaucina nephos* Rindge is described from Wyoming specimens.

*Key Words.*—Insecta Colorado, Geometridae, *Glaucina* n. sp., Insecta, Lepidoptera, Wyoming.

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Ultraviolet light traps placed by the first author in the Sherman Hills east of Laramie, Wyoming in late June and early July 1999 yielded two males and two females of a large and virtually unmarked gray *Glaucina*. Comparison of these specimens with the imagines illustrated in Rindge's 1959 revision of the genus produced no matches. Subsequent dissections of a male and female with comparison to Rindge's plates again produced no matches. Photographs of the specimens and their genitalia were subsequently sent to Dr. Rindge at the American Museum of Natural History for his opinion. In a letter to Ferris dated 19 April 2001, he replied: "I agree that the *Glaucina* is an undescribed species; we have nothing to match it."

When Nordin then examined a backlog of unplaced specimens in his collection and unprepared material in his freezer, he found four specimens from Colorado and a few additional specimens from Albany Co., Wyoming. While Ferris was on extended travel in 2001, Nordin operated ultraviolet light traps in Albany Co. at sites where specimens had been taken previously. This effort generated the additional specimens included in the type series.

In addition to the new species, two other large *Glaucina*, *interruptaria* (Grote) and *nephos* Rindge, occur in Albany Co. The dark dorsal forewing markings of *G. nephos* immediately separate it from the new species. The new species is most easily confused with *G. interruptaria*. Fresh specimens of *G. interruptaria* have a distinct pattern of fine dark markings on the dorsal forewing that is absent in the new species. Worn specimens must be dissected to ascertain identity. Additional comments follow in the *Diagnosis and Discussion* section.

To permit easy comparison of species, the format of the ensuing descriptions is purposely modeled after the format used in the 1959 revision of *Glaucina* by Rindge. The new species is described from 51 males and 9 females from Wyoming and Colorado. It seems to have been missed previously because it flies early in the season when weather conditions are extremely variable, and before itinerant

collectors normally travel in the region. Additionally, it is localized and may have specialized habitat requirements.

*GLAUCINA INCOGNITARIA* FERRIS AND NORDIN, NEW SPECIES

(Figs. 1–5, 7–12)

*Types*.—Holotype, male (Figs. 1 and 2), Wyoming, Albany Co., T[ownship]15N R[ange]71 W S[ection]29, NE of Pole Mtn., south of Happy Jack Rd., 41°13.78' N 105°22.30' W, 2538 m, 23.vi.2001, leg: J. S. Nordin. Paratypes, 50 males and 9 females with data as follows (specimens leg: J. S. Nordin except as noted): WYOMING, Albany Co.: T12 N R72 W S24, 41°00.34' N 105°25.00' W, 2309 m, 2.vii.1999, 1f; T14 N R71 W S36, 41°08.19' N 105°17.54' W, 2355 m, 8.vii.1995, 1 m; T15 N R71 W S18, 41°15.82' N 105°23.64' W, 2500 m, 1–2.vii.1999, 2 m, 1f, leg: C. D. Ferris; T15 N R71 W S29, 41°13.78' N 105°22.30' W, 2538–2544 m, 24–25.vi.1999, 1f, leg: C. D. Ferris; 22.vi.2000, 4 m; 24.vi.2000, 1 m; 25.vi.2001, 14 m, 2f; 27.vi.2001, 2 m; 28.vi.2001, 8 m, 4f; 30.vi.2001, 9 m; 2.vii.01 4 m; T15 N R73 W S1, 41°17.89' N 105°31.50' W, 2277 m, 5.vii.1988, 1 m. COLORADO: Alamosa Co., Road 150, Zapata Creek, 37°41' N 105°33' W, 2380 m, 4.vi.1994, 2 m; Dolores Co., Road 532 NW slope of Cottonwood Creek, 37°40' N 108°18.5' W, 2380 m, 24.v.2000, 1 m; Rio Blanco Co., Hwy. 139 at Garfield Co. line, 39°39' N 108°48' W, 2176 m, 27.v.1990, 1 m. Holotype and a female paratype will be deposited in the collection of the American Museum of Natural History. Additional paratypes will be deposited in other public museums and in the collections of the authors.

*Description of Male (Fig. 1)*.—Head, vertex dark gray, scales very narrowly white-tipped; frons dark gray with a few scattered whitish scales, mainly dorsolaterally, dorsolateral areas swollen and clearly separated by a trough dorsally and grading into a slight ridge toward the lower margin of the frons; palpi dark gray with whitish scales basally just below eye and at their extreme tips, palpi extending beyond plane of frons by approximately two-thirds of the diameter of the eye, antenna approximately 1 cm in length or 55% of the length of the FW; stalk obscurely speckled gray and whitish; narrow white collar just at base of head and behind a broader collar of white-tipped dark gray scales at the front of the thorax. Thorax above medium gray with white-tipped scales, some scales grayish-brown or dark gray; below white at base of wings shading into pale gray distally; legs clothed with white-tipped medium gray scales. Abdomen gray to grayish brown, sprinkled with a few dark scales especially toward anterior portion of each segment with a terminal row of strongly white-tipped scales along the posterior margin of the first four segments; ventrally paler with heavy sprinkling of white scales; aggregations of dark gray scales along the midline and immediately to each side form three somewhat broken thin dark parallel lines (visible only if there is no abdominal greasing).

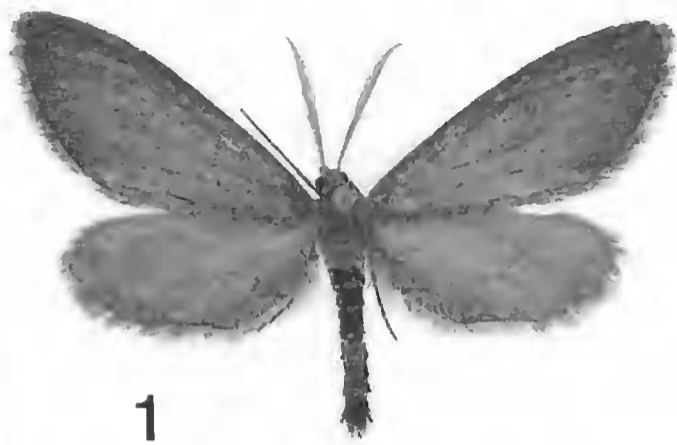
Upper Surface of Wings: Forewings, uniform medium gray with only the slightest suggestion of dark scaling forming an indistinct pm line; under magnification a few widely scattered dark scales are visible; fringes concolorous to the naked eye, but under magnification flecked with white and with darker scales at the vein ends. Hind wings concolorous with forewings with a weak accumulation of dark scales at anal angle; fringes as in the forewings.

Under Surface of Wings: Uniformly medium gray with some diffuse speckling by slightly darker scales; hind wing only very slightly lighter in color than forewing.

Length of Forewing: Holotype = 18 mm; range 16–19 mm; average (51 males) 17.75 mm.

*Description of Female (Fig. 3)*.—Similar to the male, except for filiform antennae and shorter and stouter abdomen. Length of Forewing: 16–19 mm; average of 9 females = 17.9 mm.

*Male Genitalia*.—Fifteen specimens dissected. Uncus with width of base just slightly less than length of uncus, lateral margins expanded basally, the apex decurved terminally and ending in a sclerotized point; gnathos with small median enlargement and slightly bilobed apically; valves broadly rounded with slightly angulate outer margin, costa (when not flattened, see left side of Fig. 7) broadly convex and folded, enlarged medially into valve, distally slightly tapered and ending in a setose

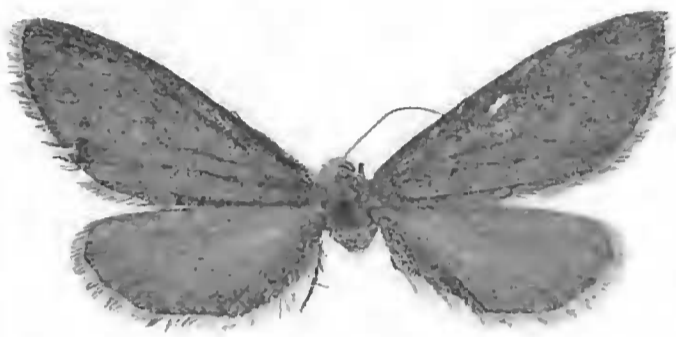


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HOLOTYPE  
*Glaucina incognitaria*  
C. D. Ferris & J. S. Nordin

25 June 2001  
black light trap  
leg. J.S. Nordin  
WYOMING: Albany Co.  
T15N R71W Sect. 29  
NE of Pole Mt. south of  
Happy Jack Rd, El. 8320 ft.

2

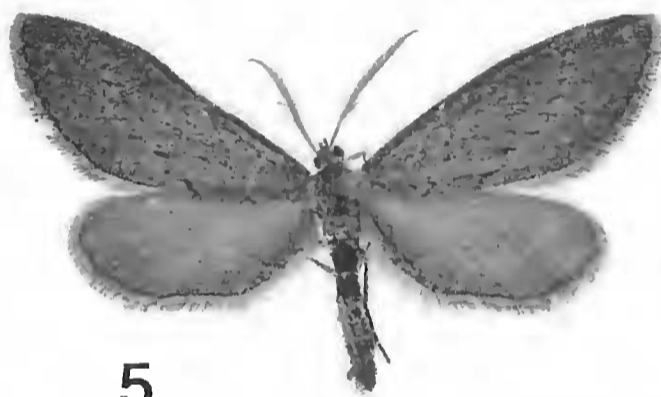


3

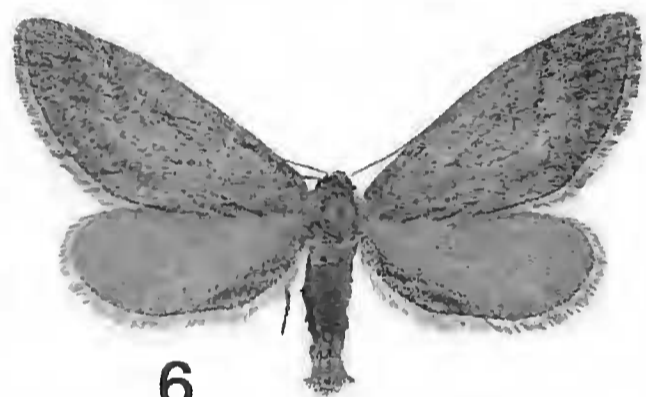
PARATYPE No. 01  
*Glaucina incognitaria*  
C. D. Ferris & J. S. Nordin

28 June 2001  
black light trap  
leg. J.S. Nordin  
WYOMING: Albany Co.  
T15N R71W Sect. 29  
NE of Pole Mt. south of  
Happy Jack Rd, El. 8320 ft.

4



5

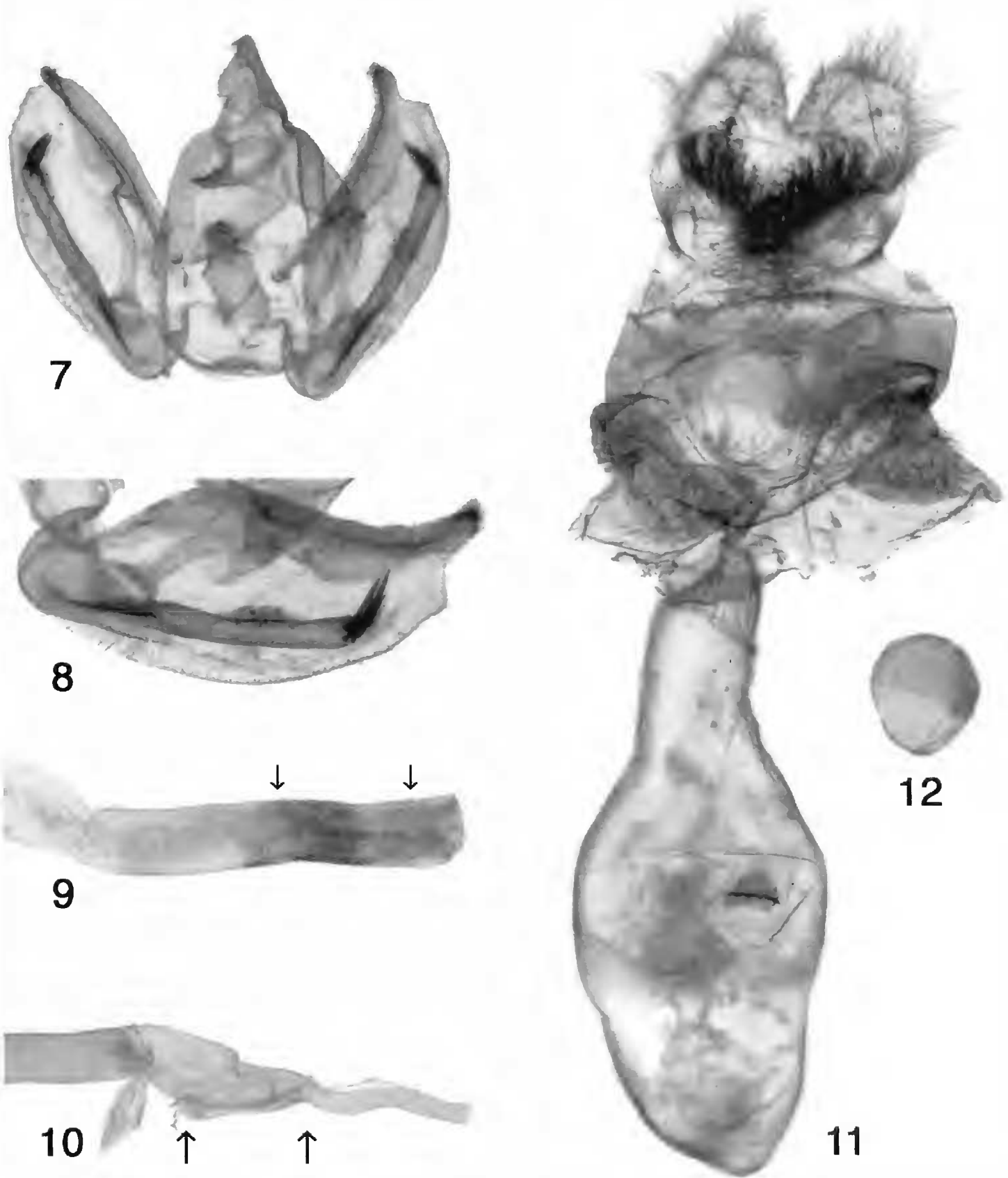


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Figures 1–6. *Glaucina* species. Figure 1. *Glaucina incognitaria* Ferris & Nordin, holotype male (dorsal). Figure 2. Specimen labels for male holotype; red holotype label. Figure 3. *Glaucina incognitaria* Ferris & Nordin, female paratype (dorsal). Figure 4. Specimen labels for female paratype; yellow paratype label. Figure 5. Male paratype (dorsal) of *G. incognitaria* showing forewing partial median band, Albany Co., WY, 30.vi.2001, J. S. Nordin. Figure 6. *Glaucina nephos* female (dorsal), Albany Co., WY, 21.v.1999, C. D. Ferris.

terminal protuberance; saccus arm long (extending about 0.8 times the length of the costa) and moderately slender with slightly broader width distally, terminating in a rounded apex armed with six spines, two heavy outer spines and four smaller and less robust inner spines (Fig. 8), base of valve with sclerotized band of nonuniform width extending from basal area of inner portion of costal swelling to the sclerotized base of the saccus; median juxta slightly longer than wide with finely pitted surface; saccus wide and broadly convex; aedeagus (Fig. 9) as long as the valves, moderately straight with diameter approximately one-sixth of the length, vesica armed with a slightly curved and slender dentate strip, which upon vesica eversion (Fig. 10) resolves into a membranous narrow band, the surface of the anterior half with triangular projections similar to the teeth of a wood rasp.



Figures 7–12. *G. incognitaria* genitalia. Figure 7. Male, aedeagus removed. Figure 8. Male, right valve (flattened). Figure 9. Male aedeagus, arrows indicate ends of vesica sclerotized band. Figure 10. Male, vesica everted, arrows indicate ends of vesica sclerotized band. Figure 11. Female. Figure 12. Female, detail of lamella postvaginalis.

*Female Genitalia* (Fig. 11).—Two specimens dissected. Sterigma with a large asymmetrical oval (compressed at top) slightly sclerotized lamella postvaginalis (Fig. 12) bordered anteriorly and laterally by numerous lightly sclerotized folds, with antevaginalis a small medially-indented sclerotized ridge; ductus bursae very short, sclerotized, roughly cylindrical, slightly longer than wide; corpus bursae elongate with tapering sides, with virtually unsclerotized longitudinally striated short tapered neck, neck and body hardly separable, enlarging into terminal, ovoid portion of bursae; prominent signum, transverse with inward-pointing median ridge, located at approximately mid-distance between the base of the ductus bursae and the apex of the corpus bursae; ovipositor lobes typical of the genus.

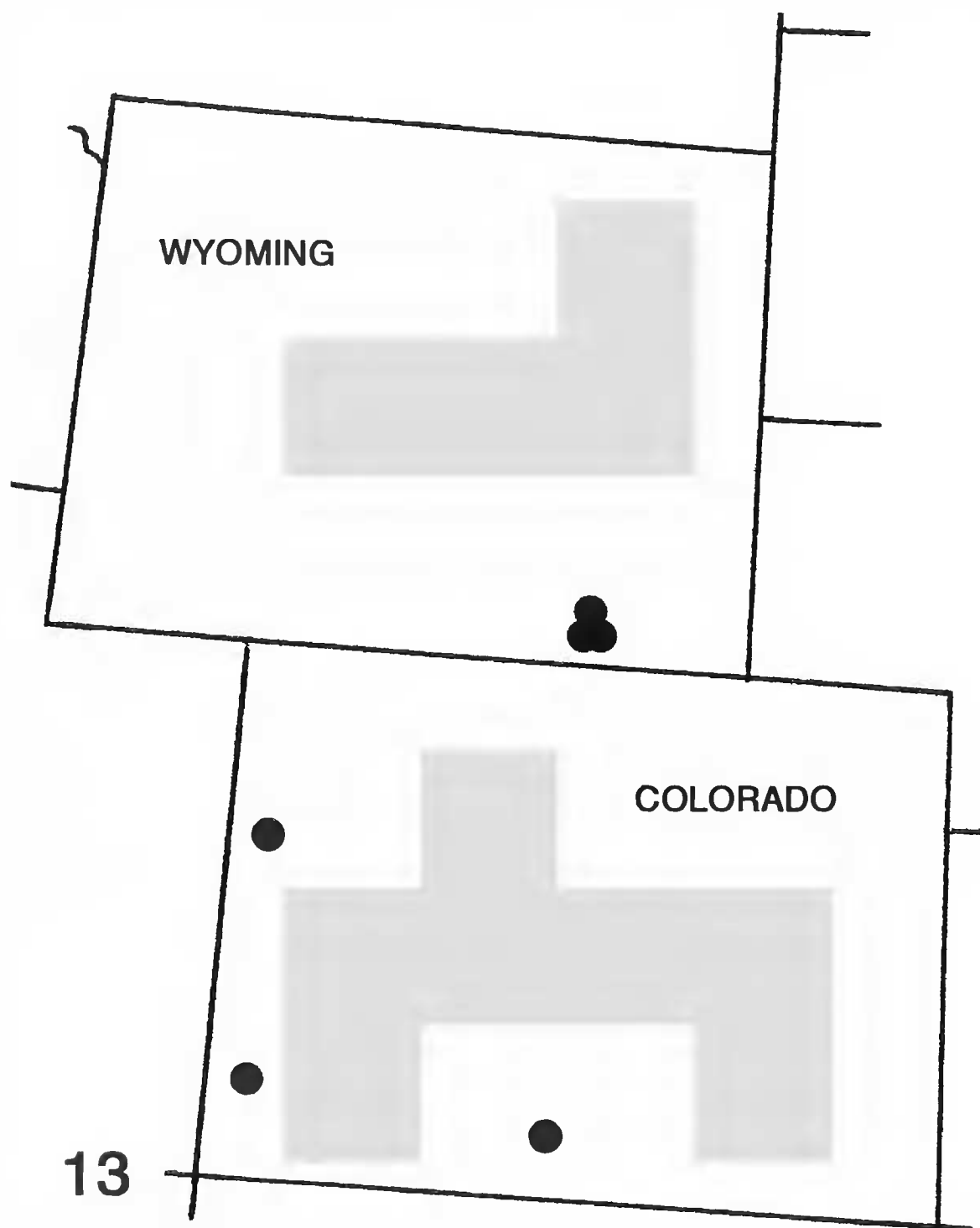


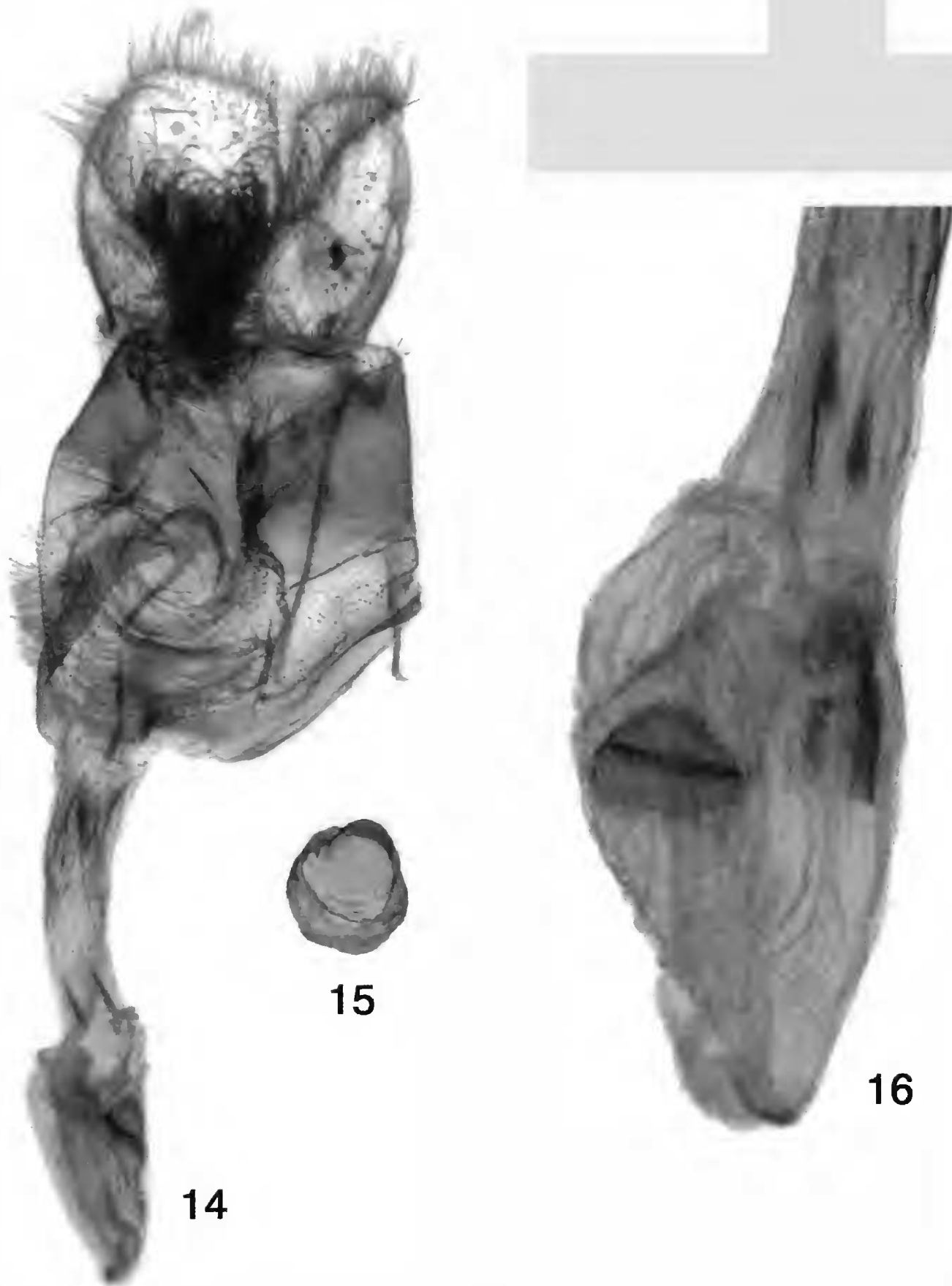
Figure 13. Distribution map for *G. incognitaria*.

*Biology and Larval Host.*—Unknown. Presence of fine soil particles trapped in the hairs at the tip of the abdomen of female specimens suggests oviposition close to the ground on a low-growing herbaceous plant. With a few exceptions (open prairie), this moth has been taken by black light in moderately dry coniferous environments (spruce-pine in Wyoming).

*Distribution.*—As is shown in Fig. 15, this moth is known presently from several tightly-grouped localized areas in Albany Co., Wyoming, and from two counties in western and one in extreme south-central Colorado.

*Etymology.*—The species name reflects the previously unknown status of this moth and is configured to be consistent with the formation of other species names in the genus. A suggested common name is “Unknown Glaucina.”

*Diagnosis and Discussion.*—On the dorsal forewing in nine males and one female there is the suggestion of antemedial and postmedial lines (Fig. 5), thus forming an open medial band. The only variation in the male genitalia noted was



Figures 14–16. *G. nephos*, female genitalia. Figure 14. Complete, but corpus bursae deflated. Figure 15. Detail of lamella postvaginalis. Figure 16. Corpus bursae showing signum at left side.

in one specimen from Dolores Co., Colorado in which the sacculus apex was armed with seven spines, three large outer spines and 4 smaller inner spines.

Based on the male and female genitalia, *G. incognitaria* is closest to *G. ignavaria* (Pearsall) [Arizona, Colorado, New Mexico] and *G. foeminaria* (Dyar) [Puebla, Mexico], and thus belongs in Group IV of Rindge (1959). In the male genitalia of *G. ignavaria*, the apex of the sacculus is armed with a cluster 5–8 elongate spines with an apical protuberance beyond the spines; in *foeminaria* the

length of the sacculus is considerably shorter than in *G. incognitaria*, and the apex is armed with 2 or 3 robust spines and 2 or 3 short spines.

The overall aspect of the female genitalia in *G. ignavaria* and *G. foeminaria* is similar to that of *G. incognitaria*, with the major differences being the geometry of the ductus bursae and lamella postvaginalis. In *G. ignavaria* the lamella postvaginalis is large and elliptical, while in *G. foeminaria* it is also elliptical, but smaller than in *G. ignavaria*.

In the Rocky Mountain Region the most likely species with which *G. incognitaria* might be confused is *G. interruptaria*. Fresh specimens are easily separated by the lack of distinct dorsal forewing maculation in *G. incognitaria*, in contrast to the well-defined but light maculation in *interruptaria*. Genitalic dissection is required to separate worn specimens. In the male genitalia, the terminal portion of the sacculus arm in *G. interruptaria* is covered by numerous small short spines, while the terminal portion of the sacculus arm in *G. incognitaria* is equipped with two heavy outer spines and four smaller and less robust inner spines. The main characters in the female genitalia that separate the two species are: lamella postvaginalis, essentially trapezoidal with the wider base rounded and convex in *G. interruptaria*, large asymmetrical oval (compressed at top) in *G. incognitaria* with convex top portion much wider than the nearly pointed rounded base; signum, sclerotization nearly symmetrical above and below inward-pointing median ridge in *G. interruptaria*, sclerotization asymmetric about inward-pointing median ridge in *G. incognitaria* with upper portion semicircular and uneven reduced lower portion.

*GLAUCINA NEPHOS* RINDGE (FEMALE)  
(Figs. 5, 14–16)

The female of this species was unknown to Rindge (1959). Males are relatively common in southeast Wyoming at black light, but females do not come readily to light. Over a number of years, the authors have managed between them to obtain 13 female specimens from several localities in Albany Co., Wyoming with collection dates from 18 May to 18 June at elevations from 2270 m to 2500 m. Similarity in wing pattern was used to associate the females with males of *nephos*. Two genitalic dissections were studied.

*Description of Female (Fig. 6).*—Similar to the male as described by Rindge, except for filiform antennae and shorter and stouter abdomen. The dorsal dark wing markings are less distinct than in the males. Length of Forewing: 16–18 mm; average of 13 females = 17.0 mm.

*Female Genitalia (Fig. 14).*—Sterigma with a large complex slightly sclerotized lamella postvaginalis (Fig. 15), consisting of a smaller slightly distorted and displaced circle overlying a larger slightly distorted circle, bordered anteriorly and laterally by a few lightly sclerotized folds, with antevaginalis a small shallowly medially-indented sclerotized ridge; ductus bursae challis-like, sclerotized, flared laterally at top and tapering to the junction with the neck of the corpus bursae, slightly shorter than wide; corpus bursae (Fig. 16) with well-defined neck, in length at least half of length of corpus bursae, very weakly striated and dotted with small pits just below junction with ductus bursae, enlarging into an apically tapering terminal bulb; prominent signum, transverse with narrow inward-pointing median ridge, located at approximately mid-length of the tapered bulb; ovipositor lobes typical of the genus.

*Biology.*—The biology and host plant of this species remain unknown.

*Observation.*—Both *G. incognitaria* and *G. nephos* occupy the same habitats and may be taken at light on the same night, however the known geographic

range of *G. nephos* is much greater [Arizona, Colorado, Idaho, Wyoming] than that currently known for *G. incognitaria*. *G. nephos* is also a Group IV species.

#### ACKNOWLEDGMENT

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#### LITERATURE CITED

Rindge, F. H. 1959. A Revision of *Glaucina*, *Synglochis*, and *Eubarnesia* (Lepidoptera, Geometridae). Bulletin AMNH, 118 (6): 259–366.

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